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EXAMINER

LU, KUEN S

ART UNIT PAPER NUMBER

2167

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/775,766	<b>Applicant(s)</b> HINSHAW ET AL.	
	<b>Examiner</b> Kuen S. Lu	<b>Art Unit</b> 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2005.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-63 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-63 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 04 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DEAILED ACTION**

### ***Response to Amendments***

1. The Action is responsive to Applicant's Amendments after Non-Final Action, filed on October 4, 2005.

### ***Drawings***

2. The Applicant's Amendments filed on October 4, 2005 with respect to the replacement sheet 3/7 for Drawing's Fig. 3 is acknowledged and accepted.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-2, 6-14, 16-18, 24-34, 38-45, 47-49 and 55-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over IBMVersa (Storage Networking Virtualization, What's it all about? Blunden et al., December 2000, IBM, hereafter "IBMVersa") in view of Ora9iAS (Oracle9iAS Clickstream Intelligence Administrator's Guide, Release 2 (9.0.2), May 2002, Oracle®, hereafter "Ora9iAS").

As per claims 1 and 33, IBMVersa teaches maintaining "a data source in a system of multiple storage units and a host controller" (See Fig. 29 and Page 61 wherein database applications utilize file system implemented on storage area network's virtual storage system comprising of disks and application server is equivalent to the Applicant's maintaining a data source in a system of multiple storage units and a host controller).

IBMVersa does not explicitly teach maintaining materialized views of a data source in the storage system.

However, Ora9iAS teaches maintaining materialized views of a data source in the storage system at Pages B-19 (Example and Parameters), B-6 (Tablespaces) and B-5 (Configuring the Database) wherein Ora9iAS' materialized view CLK\_SL\_SESSION\_MV is created on tablespace CSUMM and tablespace is defined by data file(s) and with capacity increased by adding files, and tablespace is created in database.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine Ora9iAS' teaching with IBMVersa reference by implementing database system in a storage network virtual system because both references concern with logical and physical storage where optimal storage of data and efficient retrieval of information is critical to the performance of both Ora9iAS and IBMVersa's system and the combined teaching would have enabled Ora9iAS' system to eliminate storage fragmentation and inefficient usage of storage by a complete virtualization of disk storage into Quality of Service pools of capacity (See Ora9iAS: Pages 1-1 and C-1, and IBMVersa: Pages 23 and 25).

The combined teaching of Ora9iAS and IBMVersa references further teaches the following:

“distributing control of portions of a materialized view to respective storage units, such that each storage unit controls and stores a portion of the materialized view corresponding to an associated portion of the data source” (See Ora9iAS: Page B-19 where materialized is divided into partitions by the range of dates and the partitions are stored into specified tablespaces defined by files in a file system, and where the partition name may be specified or defaulted is equivalent to the Applicant’s distributing control of portions of a materialized view to respective storage units, such that each storage unit controls and stores a portion of the materialized view corresponding to an associated portion of the data source); and

“using the respective storage unit, independent of the host controller, maintaining the corresponding portion of the materialized view” (See IBMVersa: Figs. 4-6 and Page 81 Para. 7.1 where storage pools are created on the storage devices and the storage management software controls the storage pool and migrates data within the pool independent of host servers is equivalent to the Applicant’s using the respective storage unit, independent of the host controller, maintaining the corresponding portion of the materialized view).

As per claims 2 and 34, the combined teaching of Ora9iAS and IBMVersa references further teaches “executing a set of instructions associated with the materialized view”

(See Ora9iAS: Page B-19 where create\_mview\_partitions procedure consists of a set of instructions associated with the materialized view to be executed)

As per claims 6 and 38, the combined teaching of Ora9iAS and IBMVersa references further teaches “the set of instructions is a set of not compiled instructions and the storage unit selects a subset of instructions for execution” (See Ora9iAS: Pages B1 and B19 where Oracle9iAS database installation is performed by an installation wizard and the software’s materialized view partitions are created by a procedure).

As per claims 7 and 39, the combined teaching of Ora9iAS and IBMVersa references further teaches “the set of instructions is based on a data schema” (See Or9iAS: Page B19 where the procedure create\_mview\_partitions is executed based on schema p\_mview\_name CLK\_SL\_SESSION\_MV).

As per claims 8 and 40, the combined teaching of Ora9iAS and IBMVersa references further teaches “the set of instructions is used to propagate rows inserted into the data source to the materialized view” (See Or9iAS: Page 3-32 where Refresh summaries is to populate data into materialized view).

As per claims 9 and 41, the combined teaching of Ora9iAS and IBMVersa references further teaches “in response to an instruction to insert new data into the data source, the new data on disk without inserting it into the materialized view” (See Or9iAS: Page 3-33

where summary refresh period is the frequency how often a summary is refreshed after the source table have been operated for the length of time equivalent to the period).

As per claim 10, the combined teaching of Ora9iAS and IBMVersa references further teaches "the new data is shared among multiple materialized views and the multiple materialized views are maintained by one step of storing the new data on disk" (See Ora9iAS: Page 3-32 where the Summary layer shares tables and materialized views may be enabled to refresh at the end of process for refreshing materialized views).

As per claims 11 and 42, the combined teaching of Ora9iAS and IBMVersa references further teaches "tagging the new data as private to the materialized view" (See Ora9iAS: Page B-33 where data is tagged for refreshing based on summary refresh periods).

As per claims 12 and 43, the combined teaching of Ora9iAS and IBMVersa references further teaches "transforming, before storing the new data, new data into a format appropriate for the materialized view" (See Ora9iAS: Page 3-32 where refreshing materialized view is to store data in according to the format of the view, instead of the source tables).

As per claims 13 and 44, the combined teaching of Ora9iAS and IBMVersa references further teaches the following:

“sorting the new data in response to an instruction to present the materialized view”

(See Ora9iAS: Page 3-33 where time based refresh of summary only refresh data sorted out for the time period specified); and

“merging the new data with data from the materialized view as it is streamed to output”

(See Ora9iAS: Page 3-33 where time based refresh of summary only refreshing data sorted out for the time period specified to merge with data outside of range of time specified).

As per claims 14 and 45, the combined teaching of Ora9iAS and IBMVersa references further teaches the following:

“transforming the new data into a format appropriate for the materialized view in response to an instruction to present the materialized view” (See Ora9iAS: Page 3-32 where refreshing materialized view, by definition, is to store data into the view in according to the format of the view, instead of the source tables); and

“merging the new data with data from the materialized view as it is streamed to output” (See Ora9iAS: Page 3-33 where time based refresh of summary only refreshing data sorted out for the time period specified to merge with data outside of range of time as specified).

As per claims 16 and 47, the combined teaching of Ora9iAS and IBMVersa references further teaches “sorting the new data according to a format of the



materialized view” (See Ora9iAS: Page 3-33 where time based refresh of summary only refresh data sorted out for the time period specified).

As per claims 17 and 48, the Examiner takes an Official Notice to provide a teaching for “updating the materialized view during a time of low activity on the storage unit” (it is well known to an ordinary skilled in the art that balancing activity in data system is a common practice, for example, backup is normally perform in night shift when user activity is low).

As per claims 18 and 49, the Examiner takes an Official Notice to provide a teaching for “the data source is a base table” (it is well known to an ordinary skilled in the art that materialized views are normally built on database tables, for example, simplified monthly sale view summaries sales data from daily sales tables of the month).

As per claims 24 and 55, the Examiner takes an Official Notice to provide a teaching for “indicating deleted data as deleted without removing it from the materialized view” (it is well known to an ordinary skilled in the art that a SQL selection for deleted records from a table is prompted with a non-existed record message and materialized view keeps data whose corresponding records in the base tables have been deleted till next refresh operation).

As per claims 25 and 56, the Examiner takes an Official Notice to provide a teaching for “wherein the deleted data is data before an indicated time, and the step of indicating the deleted data further comprises: storing the indicated time” and “in response to an instruction to present the materialized view, removing records with a time indication less than the stored indicated time as data from the materialized view is streamed to output” (it is well known to an ordinary skilled in the art that database redo and snapshot logs record timestamp of records being inserted, updated and deleted and refreshing of materialized view updates the records stored in the view which may be based on the sub-query for creating the view and the timing when the view is refreshed the data corresponding to deleted base table records is removed).

As per claims 26 and 57, the Examiner takes an Official Notice to provide a teaching for “deleting data from the materialized view corresponding to data source records indicated for deletion as data is streamed to output in response to an instruction to present the materialized view” (it is well known to an ordinary skilled in the art that materialized view has storage for data which can be updated, inserted and deleted, and trigger function is commonly implemented for data insertion, update and deletion in order to maintain data constraint, consistency and integrity. For example, a deletion of materialized view triggers a pre-refreshing of the view).

As per claims 27 and 58, the Examiner takes an Official Notice to provide a teaching for “physically deleting the indicated deleted data from the materialized view at a time of

low activity on the storage unit" (it is well known to an ordinary skilled in the art that materialized view is updated to synchronize with corresponding base tables after being refreshed and further, balancing activity in data system is a common practice, for example, backup is normally perform in night shift when user activity is low).

As per claims 28 and 59, the Examiner takes an Official Notice to provide a teaching for "assigning a transaction ID to the materialized view" (it is well known to an ordinary skilled ion the art that archive logs are maintained for recording status of every transaction performed on database such that database can be rolled back or forward should occasions require and data on timing, record and transaction involved, including the transaction ID assigned, are stored in the log).

As per claims 29 and 60, the Examiner takes an Official Notice to provide a teaching for "the transaction ID of the materialized view represents a point past which transactions cannot be rolled back" (it is well known to an ordinary skilled ion the art that archive logs are maintained for recording status of every transaction performed on database such that database can be rolled back or forward should occasions require and data on timing, record and transaction involved are stored in the log teaches, noting transaction ID and timing are determined to decide the range of database recovery).

As per claims 30 and 61, the Examiner takes an Official Notice to provide a teaching for "creating the materialized view from the data source using one or more of base

relationships" (it is well known to an ordinary skilled ion the art that materialized views are created from base relations of a database, for example, facts of daily sales in data warehouse are created based on the summary information of tables from a database for business transaction).

As per claims 31 and 62, the Examiner takes an Official Notice to provide a teaching for "the base relationships is further modified by modifiers" (it is well known to an ordinary skilled ion the art that materialized views are refreshed periodically to refresh the changes taking place in the base relations, for example, facts of daily sales in data warehouse are refreshed nightly based on the summary information of tables from a database for business transaction).

As per claims 32 and 63, the Examiner takes an Official Notice to provide a teaching for "storing intermediate views if the materialized view involves more than one base relationship" (it is well known to an ordinary skilled ion the art that views can be created from other views or base relations, for example, a department store company's toy sale amount is created based on the summary of toy sale by all department stores which is further created on the basis of summary information of every toy sale by all department stores).

7. Claims 3-5, 15, 35-37 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over IBMVersa (Storage Networking Virtualization, What's it all about?

Art Unit: 2167

Blunden et al., December 2000, IBM, hereafter "IBMVersa") in view of Ora9iAS (Oracle9iAS Clickstream Intelligence Administrator's Guide, Release 2 (9.0.2), May 2002, Oracle®, hereafter "Ora9iAS") as applied to claims 1-2, 9, 14, 33-34, 41 and 45 above, and further in view of LeCrone et al. (U.S. Patent 6,308,284, hereafter "LeCrone").

As per claims 3 and 35, the combined teaching of IBMVersa and Ora9iAS references does not explicitly teach "sending the set of instructions from the host controller to the storage unit".

However, LeCrone further teaches "sending the set of instructions from the host controller to the storage unit" (See Fig. 10, elements 119 and col. 11, lines 4-15 wherein LeCrone's write request is transferred to remote controllers at the remote storage units is equivalent to the Applicant's sending the set of instructions from the host controller to the storage unit).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine LeCrone's teaching with Ora9iAS and IBMVersa references by distributing database and data operation across multiple storage controller units in a storage network virtual system because the references concern with logical and physical storage where optimal storage of data and efficient retrieval of information is critical to the performance of system and the combined teaching would have increased the system performance because of distributed I/O operations to remote storage controller units.

As per claims 4 and 36, the combined teaching of LeCrone, Ora9iAS and IBMVersa references further teach “the set of instructions is a set of compiled instructions” (See LeCrone: Figs. 2, 10, elements 119, col. 11, lines 4-15 and col. 6, lines 44-46 wherein LeCrone’s write request is transferred to remote controllers at the remote storage units stored with database where database write is performed by a set of compiled instructions is equivalent to the Applicant’s the set of instructions is a set of compiled instructions).

As per claims 5 and 37, the combined teaching of LeCrone, Ora9iAS and IBMVersa references further teaches “caching the set of instructions at the storage unit” (See LeCrone: col. 3, lines 64-65 and col. 7, lines 53-58 wherein LeCrone’s data and application program are written onto primary cache or the operating system’s address space is equivalent to the Applicant’s caching the set of instructions at the storage unit).

As per claims 15 and 46, the combined teaching of Ora9iAS and IBMVersa references does not explicitly teach “the step of transforming the new data is performed in storage unit hardware”, although Ora9iAS teaches transforming the new data at Page 3-32 where refreshing materialized view, by definition, is to store data into the view in according to the format of the view, instead of the source tables.

However, LeCrone teaches write request operation at the remote controllers at Fig. 10, elements 119 and col. 11, lines 4-15 wherein write request is transferred to remote controllers at the remote storage units.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine LeCrone's teaching with Ora9iAS and IBMVersa references by distributing database and data operation across multiple storage controller units in a storage network virtual system because the references concern with logical and physical storage where optimal storage of data and efficient retrieval of information is critical to the performance of system and the combined teaching would have increased the system performance because of distributed I/O operations to remote storage controller units.

5. Claims 19-23 and 50-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over IBMVersa (Storage Networking Virtualization, What's it all about? Blunden et al., December 2000, IBM, hereafter "IBMVersa") in view of Ora9iAS (Oracle9iAS Clickstream Intelligence Administrator's Guide, Release 2 (9.0.2), May 2002, Oracle®, hereafter "Ora9iAS") as applied to claims 1 and 33 above, and further in view of Okada et al. (U.S. Publication 2002/0040413, hereafter "Okada").

As per claims 19 and 50, the combined teaching of Ora9iAS and IBMVersa references teaches maintaining materialized views in distributed storage units as previously described in claims 1 and 33 rejections.

The combined teaching of Ora9iAS and IBMVersa references does not explicitly teach “compressing the materialized view”, although Cochrane teaches storing materialized view records.

However, Okada teaches compressing the database record (See Pages 5-6, [0009] where warehouse data cubes are compressed).

It would have been obvious to one having ordinary skill in the art at the time of the applicant’s invention was made to combine Okada’ teaching with Ora9iAS and IBMVersa references by compressing materialized views because all references are directed to data storage and management, and the further combined teaching of the references would have enabled a data warehouse system to efficiently store data in a highly compressed structure requiring a much smaller storage capacity while maintaining distributed and redundant storage of data for improving data security and system performance.

As per claims 20 and 51, the combined teaching of Okada, Ora9iAS and IBMVersa references further teaches the following:

“compressing the materialized view further comprises: compressing a record before a write operation” (See Okada: Fig. 6, steps S403-S404, S406, S408 and Page 7, [0196]-[0210] wherein Okada’s data records are compressed before being stored and, restored and transferred after being read out is equivalent to the Applicant’s compressing the materialized view further comprises: compressing a record before a write operation);  
and



"decompressing a record after a read operation" (See Okada: Fig. 6, steps S403-S404, S406, S408 and Page 7, [0196]-[0210] wherein Okada's data records are compressed before being stored and, restored and transferred after being read out is equivalent to the Applicant's decompressing a record after a read operation).

As per claims 21 and 52, the combined teaching of Okada, Ora9iAS and IBMVersa references teaches compressing the materialized view (See Okada: Fig. 6, steps S403-S404, S406, S408 and Page 7, [0196]-[0210] wherein Okada's data records are compressed before being stored and, restored and transferred after being read out).

The combined teaching of the three references does not explicitly teach "assigning a smaller data type to a column containing data of a larger data type, the data fitting within the smaller data type".

However, it is well known to an ordinary skilled in the art to utilize a smaller data type to a column containing data of a larger data type, the data fitting within the smaller data type for compressing data to save storage, for example, a data type of number(32) will be utilized to store a number originally stored in number(132) as a preliminary step of data compression should the content fit in the smaller data type number(32).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Okada' teaching with LeCrone and Cochrane by assigning a smaller data type to a column containing data of a larger data type, the data fitting within the smaller data type because the combined teaching would have further compress data to further reduce the storage capacity required.

As per claims 22 and 53, the combined teaching of Okada, Ora9iAS and IBMVersa references further teaches “removing a Record ID column when there are no duplicates in data in the materialized view” (See Okada: Fig. 15 and Page 1, [0009]-[0010] wherein Okada’s identifiable record segments are packed without specifically recording identifications and record position of write data after being compressed is identified suggests the teaching of removing a Record ID column when there are no duplicates in data in the materialized view).

As per claims 23 and 54, the combined teaching of Okada, Ora9iAS and IBMVersa references further teaches the following:

“removing a Transaction ID column when there is no change in data records before an indicated time” (See Okada: Fig. 15 and Page 1, [0009]-[0010] wherein Okada’s identifiable record segments are packed without specifically recording identifications and record position of write data after being compressed is identified suggests the teaching of removing a Transaction ID column when there is no change in data records before an indicated time); and

“recording the indicated time” (See Okada: Fig. 31, Page 1, [0014] and Page 13, [0345] wherein Okada’s data segments are compressed in time-series suggests the teaching of recording the indicated time).

### ***Conclusion***

6. The prior art made of record

B. U.S. Patent 6,308,284

C. U.S. Publication 2002/0040413

U. Oracle9iAS Clickstream Intelligence Administrator's Guide, Release 2 (9.0.2),  
May 2002, Oracle®

V. Storage Networking Virtualization, What's it all about? Blunden et al.,  
December 2000, IBM

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. U.S. Publication 2004/0128289

D. U.S. Publication 2003/0126143

E. U.S. Patent 5,842,207

F. U.S. Patent 6,745,207

W. Oracle8i™ for Data Warehousing, Features Overview, February 1999, Oracle®

### ***Response to Arguments***

7. Applicant's arguments with respect to claim 1-63 have been considered but are moot in view of the new ground(s) of rejection.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

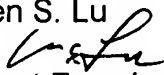
***Contact Information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuen S Lu whose telephone number is (571) 272-4114. The examiner can normally be reached on Monday-Friday (8:00 am-5:00 pm). If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Jean R. Homere, Esq. can be reached on (571) 272-3780. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for Page 13 published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 886-217-9197 (toll-free).

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Kuen S. Lu  
  
Patent Examiner

December 9, 2005

  
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Patent Examiner